What is claimed is:

1. A code division multiple access (CDMA) base station system, comprising:

an array antenna receiving a signal;

a multi-channel down-conversion means for down-converting the signal received through the array antenna to generate a digital signal;

a calibration means for injecting an RF reference signal into the multi-channel down-conversion means to generate a baseband digital reference signal, analyzing the baseband digital reference signal to estimate a transfer function of the multi-channel down-conversion means and correcting an error of the transfer function of multi-channel down-conversion means;

a two-dimensional searching means for spatial-filtering the digital signal to generate a spatial-filtered signal and correlating the spatial-filtered digital signal with a pseudo noise (PN) to thereby detect the signal and acquire corresponding code timings; and

an adaptive array demodulation means for performing a beamforming operation and demodulating received data through a despreader and a rake receiver.

2. The code division multiple access (CDMA) base station system as recited in claim 1, wherein said two-dimensional searching means includes:

means for dividing a sector into a plurality of subsectors;

a plurality of beamforming networks each for spatial-filtering the digital signal by forming an antenna beam steering the corresponding subsector; and

a plurality of one-dimensional searchers each for correlating the spatial-filtered signal with the PN code to detect the signals coming from the direction of the corresponding subsector and to acquire the code timings of the detected signals,

wherein the beamforming network and the one-dimensional searcher are allocated to each subsector, and

wherein all the code timings outputted from the subsectors are put together to thereby acquire the code timings for the sector.

3. A method for acquiring a code timing by using a two-dimensional searcher in a code division multiple access (CDMA) base station system using an array antenna, comprising the steps of:

a) down-converting a signal received through an array antenna to generate a digital signal;

b) injecting an RF reference signal into a multi-channel down-conversion means and to generate a baseband digital reference signal and analyzing the baseband digital reference signal to estimate a transfer function of the multi-channel down-conversion means;

c) correcting an error of the transfer function of multi-channel down-conversion means based on the transfer function estimate obtained at step b);

d) dividing a sector into a plurality of the subsectors;

e) spatial-filtering the digital signal using a beamforming weight to thereby generate a spatial-filtered digital signal;

f) correlating the spatial-filtered digital signal with a PN code to thereby detect the signal and acquire code timings of the detected signal; and

g) putting together the code timings for all the subsectors to acquire the code timings for an entire sector.

4. A method for estimating a range of a signal arrival angle using a two-dimensional searcher in a code division multiple access (CDMA) base station system having an array antenna, comprising the steps of:

a) down-converting a signal received through an array antenna to generate a digital signal;

b) injecting an RF reference signal into a multi-channel down-conversion means and to generate a baseband digital reference signal and analyzing the baseband digital reference signal to estimate a transfer function of the multi-channel down-conversion means;

c) correcting an error of the transfer function of multi-channel down-conversion means based on the transfer function estimate obtained at step b);

d) dividing a sector in which the signal is received into a plurality of the subsectors;

e) spatial-filtering the digital signal using a beamforming weight to thereby generate a spatial-filtered digital signal;

f) correlating the spatial-filtered digital signal with a PN code to thereby detect the signal; and

g) estimating an angle range of the signal using an angle region of the subsector in which the signal is detected.

5. The method as recited in claim 4, further comprising the step of:

estimating an angle of arrival of the signal based on an azimuth power spectrum calculated only within the angle range obtained at step g).

6. The method as recited in claim 4, wherein the error of the transfer function of multi-channel down-conversion means is corrected based on the transfer function estimate obtained at step b);

7. The method as recited in claim 4, wherein the error of the transfer function of multi-channel down-conversion means is corrected by multiplying an optimum beamforming weight of the array antenna by an inverse of the transfer function estimate, wherein the optimum beamforming weight is calculated from the array manifold of the array antenna.

8. The method as recited in claim 7, wherein a finger beamforming is performed until the optimum finger beamforming weight is calculated, wherein the searcher beamforming weight steering the subsector in which the finger signal is detected is used as an initial finger beamforming weight.

9. The method as recited in claim 8, wherein the convergence speed of finger beamforming weight is increased, wherein the beamforming weight steering the subsector in which the finger signal is detected is used as an initial finger beamforming weight.